The age-old question of why *Homo sapiens* flourished on Earth while our close evolutionary cousins, the Neanderthals, faded into extinction remains a subject of intrigue. It has been hypothesized that maybe we were just naturally smarter, yet evidence to support this claim is lacking.

Despite having large brains, advanced language capabilities, and the ability to create complex tools, art, and jewellery, suggesting their intelligence rivaled ours, Neanderthals still vanished. This raises the possibility that it wasn’t individual aptitude that set our ancestors apart, but rather the collective strength of our social systems.

Human evolution might be more "bizarre" than we once thought, according to a new study.

In the past, scientists believed that hominin evolution was largely driven by changes in climate. But now, research from the University of Cambridge has suggested that competition was, in fact, fundamental to hominin evolution.

"We have been ignoring the way competition between species has shaped our own evolutionary tree," said lead author Dr. Laura van Holstein, a University of Cambridge biological anthropologist from Clare College. "The effect of climate on hominin species is only part of the story."

Interspecies competition is common among most other vertebrates: in any new environment there is an explosion of species evolution as each species adapts to fill a particular niche. However, once all the niches are filled, competition kicks in and this explosive evolution flatlines.

"The pattern we see across many early hominins is similar to all other mammals," van Holstein said. "Speciation rates increase and then flatline, at which point extinction rates start to increase. This suggests that interspecies competition was a major evolutionary factor."

"The more species of Homo there were, the higher the rate of speciation," she said. "So when those niches got filled, something drove even more species to emerge. This is almost unparalleled in evolutionary science."

In other words, it appears as if competition between different Homo species actually drove the evolution of even more Homo species—a complete reversal of what we would expect to see based on the evolution of most other vertebrates.

So why is our evolutionary tree so weird?

Well, according to van Holstein, it probably has something to do with our use of technology.

"Adoption of stone tools or fire, or intensive hunting techniques, are extremely flexible behaviors," van Holstein said. "A species that can harness them can quickly carve out new niches, and doesn't have to survive vast tracts of time while evolving new body plans."

In the distant past, Neanderthals dominated Europe and western Asia before *Homo sapiens* from southern Africa began migrating. Roughly 40,000 years ago, Neanderthals had vanished, ceding their territory to modern humans. This gradual replacement implies humans held some advantage, but the nature of this benefit is still debated.

Neanderthals mastered the use of fire, were accomplished hunters who took down sizable game, and also had the skills to gather a variety of foods, from marine life to plants. Their culture even had aesthetic and spiritual dimensions, including the creation of adornments and cave paintings, and the ceremonial burial of their dead.

The differences that favored the survival of *Homo sapiens* over Neanderthals might have been more societal than individual. Taking cues from modern hunter-gatherers, such as the Khoisan and Hadzabe, suggests that early humans lived in flexible social structures that extended beyond immediate family bands to form larger tribal networks.

Neanderthal societies, by contrast, might have been defined by their smaller, tighter-knit communities. A signal of this is observable in their lower genetic diversity, suggesting that Neanderthal social groups were considerably smaller in size.